R E P O R T R E S U M E S

ED 012 006 AL 000 034

TWO ASPECT MARKERS IN MANDARIN.

BY- WANG, WILLIAM S-Y.
OHIO STATE UNIV., COLUMBUS, RESEARCH FOUNDATION

REPORT NUMBER POLA-8-4 PUB DATE APR 64
EDRS PRICE MF-$0.09 HC-$1.08 27P.

DESCRIPTORS- *MANDARIN CHINESE, *TRANSFORMATION THEORY (LANGUAGE), *GRAMMAR, *PHRASE STRUCTURE, *MORPHOLOGY (LANGUAGES), PROJECT ON LINGUISTIC ANALYSIS, COLUMBUS

TWO ASPECT MARKERS IN MANDARIN CHINESE ARE STUDIED WITHIN THE GENERAL FRAMEWORK OF A TRANSFORMATIONAL GRAMMAR. THEY ARE COMMONLY REPRESENTED AS "-LE," INDICATING COMPLETION OF ACTION, AND "-GUO," INDICATING THAT AN ACTION HAS TAKEN PLACE AT LEAST ONCE. THE PROBLEM INVOLVES SEVERAL SEEMING IRREGULARITIES IN THE FORMATION OF NEGATIVE SENTENCES AND THE SO-CALLED "A-NOT-A" QUESTIONS. THE SOLUTION PROPOSED CONSISTS OF THE IDENTIFICATION OF THE MORPH "-YOU" (AS IN MEIYOU) AND THE ASPECT MARKER "-LE" AS SUPPLETIVE ALTERNANTS OF THE SAME MORPHEME. A SET OF CONSTITUENT STRUCTURE RULES AND TRANSFORMATIONAL RULES ARE GIVEN. THE UNDERLYING P-MARKERS OF SEVERAL SENTENCES ARE ALSO GIVEN TO ILLUSTRATE THE RULES AS THEY RELATE TO THE PROBLEMS OF THE ASPECT MARKERS. (IT)

ED012006

RF Project 1685
Report 2

THE OHIO STATE UNIVERSITY

RESEARCH FOUNDATION

1314 KINNEAR ROAD COLUMBUS, OHIO 43212

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

Project on Linguistic Analysis
Report No. 8

PROGRESS REPORT ON MANDARIN TONE STUDY
Robert Brotzman
Division of Linguistics

RESULTATIVE VERBS AND OTHER PROBLEMS
Anne Yue Hashimoto
Division of Linguistics

PRE-NOMINAL MODIFIERS
Sandra Annear
Division of Linguistics

TWO ASPECT MARKERS IN MANDARIN
William S-Y. Wang
Division of Linguistics

NATIONAL SCIENCE FOUNDATION
Grant No. GN-174

AL 000034

Two Aspect Markers in Mandarin [1]

William S-Y. Wang

Introduction

In this study we present the solution to a well-known problem of aspect markers in Mandarin. The problem involves several seeming irregularities in the formation of negative sentences, and the so-called A-not-A questions. Essentially, our solution of the problem consists of the identification of the morph -yǒu (as in méiyǒu) and the aspect marker -le as suppletive alternants of the same morpheme. In the light of this identification, it will be seen that the relations among declarative, negative, and A-not-A sentences are both simple and regular.

According to the theory of grammar [2] which underlies the present study, the structural description (hereafter abbreviated SD) of a sentence may be represented as a series of diagrams each of which is called a P-marker. Briefly, a P-marker consists of a tree graph [3] whose nodes are labeled by a hierarchy of grammatical constituents, with the top node labeled S, i.e. sentence. A P-marker, then, is one of a series of statements about the relations among the postulated constituents of a sentence.

Every SD contains one deep P-marker, P_d, one surface P-marker, P_s, and possibly other intermediate P-markers. We may express this in the following formula:

$$SD = \{P_d, P_2, \ldots, P_s\}.$$

Of these P-markers, P_s is a direct analysis of the sentence under description, in that its bottom nodes are labeled by a sequence of morphemes that corresponds exactly to the sequence of morphemes that constitutes that sentence.

Each P-marker P_n is derived from the P-marker P_{n-1}, which precedes it in the series, by a transformation, which may delete, expand, permute, or substitute the constituents of P_{n-1} to form P_n. In some cases, P_d,

which is expanded from the constituent structure rules, is identical in form with P_s, and there are no other P-markers in the SD. In such SD's, no transformations need to be used.

Such an interpretation of SD as a series of P-markers connected by transformations enables the analyst to formalize such crucial concepts as "discontinuous constituent," "ellipsis," etc., in his description of a sentence. In this study, we make use of transformations to identify two morphs as alternants of the same morpheme, even though these morphs occur in very different syntactic positions. This interpretation of SD allows us to reveal a deeper type of relatedness among sentences in terms of the similarities between their surface as well as their non-surface P-markers.

The remainder of this paper will be divided into three sections. In Section I the problem will be presented and its solution informally discussed. In Section II a set of constituent structure and transformation rules will be given. In Section III the underlying P-markers of several sentences will be shown. These P-markers will give a precise illustration of the rules as they relate to the problem of the aspect markers.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

Section I

A. Negation

Our attention will be focused primarily on the two aspect markers commonly represented as -le and -guo. Roughly, -le indicates that an action has been completed, and -guo indicates that an action has taken place at least once. A declarative sentence which does not contain these aspect markers will be called a plain sentence. A negative plain sentence may be formed simply by selecting the negative marker BU [4] at the beginning of the predicate to precede the verb phrase. In the following example, (1a) means "He buys books," where the order is subject-verb-object. (1b) is the negative partner of (1a).

1a. Tā mǎi shū.
b. Tā BU mǎi shū.

However, if the sentence contains -le or -guo, adding BU would produce an expression that is not grammatical. That is, the negation of (2a) is not (2b). Rather it is (2c) or (2d), which may be translated roughly as "He did not buy books."

2a. Tā mǎile shū.
b. *Tā BU mǎile shū.
c. Tā méiyǒu mǎi shū.
d. Tā méi mǎi shū.

Similarly, the negation of (3a) is not (3b), but (3c) or (3d). Here, it means approximately "He has never bought books."

3a. Tā mǎiguo shū.
b. *Tā BU mǎiguo shū.
c. Tā méiyǒu mǎi shū.
d. Tā méi mǎi shū.

The situation is the same even if there is an adverbial modifier between the negative and the verb. We have an example in (3e), which means "He has not once bought books happily and generously."

3e. Tā méiyǒu gāogāoxìngxìng dàdafāngfāngde mǎiguo shū.

The irregularities in the negation of sentences containing aspect markers seem to be (i) the deletion of -le (but not of -guo), and (ii) the replacement of BU by méiyǒu, which in turn may be abbreviated to méi. In fact, this is the way these irregularities are traditionally stated. [5] Notice that in such statements, méi and méiyǒu are regarded as alternants, and -guo is viewed as an independent marker that is parallel in grammatical status to -le.

We shall see, however, that these irregularities can be eliminated if we interpret these morphs differently. First we posit two aspect markers, of the form -yǒu and -yǒu-guo. The morph méi is the alternant of BU before either aspect marker. Thus the form méiyǒu is actually morphemically complex: i.e. it is a sequence of negative marker followed by aspect marker; it is not simply the unabbreviated form of méi.

Furthermore, the aspect markers should be developed first to precede the verb. [6] There is a fixed set of grammatical conditions under which the -yǒu may be deleted, or transported to follow the verb, and changed into its alternant form -le; the -guo is always transported, without change in its phonetic shape. The exact statement of these conditions is given in the form of transformation rules below.

According to this analysis, the SD of sentence (2a) contains a deep P-marker whose bottom nodes are labeled by the morphemes Tā yǒu mǎi shū. Similarly, the SD of sentence (3a) contains a deep P-marker labeled by Tā yǒu-guo mǎi shū. Let us call the sequences of morphemes pre-sentences when they label intermediate P-markers. The two pre-sentences are given below, together with their negated partners.

4a. Tā yǒu mǎi shū.
b. Tā BU yǒu mǎi shū.

5a. Tā yǒu-guo mǎi shū.
b. Tā BU yǒu-guo mǎi shū.

In order to transform (4a-b) and (5a-b) into sentences, rules would have to be formulated to: (i) change BU to méi, (ii) transport the aspect markers in (4a), (5a), and the -guo in (5a) and (5b) to follow the verb mǎi, and (iii) change the post-verbal -yǒu to -le, or to zero. These

rules need to be applied in a given order to produce the correct sentences; for example, -yǒu should be transported to the post-verbal position only after it has conditioned the change of BU into méi. These rules are given in Section II of this paper.

Such an analysis would enable us to view affirmative and negative sentences as being paired in exactly the same way, whether they contain aspect markers or not: namely, the negative verb phrase is preceded by BU, whereas the affirmative one is not. As can be readily seen by comparing (1a-b) with (4a-b) and (5a-b), the paradigm of affirmative vs. negative and plain vs. non-plain expressions becomes perfectly regular. Furthermore, this analysis finds support in the evidence provided by other dialects. In the Cantonese and Min dialects, (4a) is perfectly grammatical, though in Mandarin it is not. [7] In such dialects, then, some of the rules mentioned above simply do not apply. Thus this portion of the grammar turns out to be basically similar for all these dialects, except for several obligatory transformations.

The correctness of this analysis of the aspect markers becomes even more clear when we consider certain problems of deletion in the A-not-A questions. We will turn to these sentences next.

B. A-Not-A Questions

The A-not-A question is a special type of disjunctive question. [8] In general, the two disjuncts of a disjunctive question may occur in either order, and may be quite dissimilar in the morphemes they contain. In the case of A-not-A questions, however, the two disjuncts occur in a given order, i.e. the affirmative predicate preceding the corresponding negative predicate. Furthermore, whereas the second disjunct of other disjunctive questions may be optionally preceded by a conjunction, i.e. shì or háishi (which may be optionally reduplicated to precede the first disjunct), normally nothing intrudes between the two predicates in an A-not-A question.

The above characterization of A-not-A questions is of course not complete. For example, referring back to the sentences of (1a-b), we would expect the corresponding A-not-A question to be (6a) below, where

the verb phrases in the two predicates are repeated in full. In actual fact, however, one of the verb phrases (but not both) usually undergoes deletion. If the deletion is from the negative predicate, we get (6b); if it is from the affirmative predicate, we get (6c). Either of these may be translated as "Does he buy books?"

6a. Tā mǎi shū BU mǎi shū?
b. Tā mǎi shū BU mǎi?
c. Tā mǎi BU mǎi shū?

The A-not-A question can be formed from a variety of predicates as well as from many sentence types. In (7a-e) below, the label within the parentheses after each sentence indicates the grammatical category of the left-most constituent of the verb phrase. A rough translation is given beneath each sentence.

7a. Tā kàn wǒde shū BU kàn wǒde shū? (transitive verb)
"Is he reading my book?"
b. Tā lái BU lái? (intransitive verb)
"Is he coming?"
c. Tā yuànyi mǎi nèiben shū BU yuànyi mǎi nèiben shū? (auxiliary verb)
"Is he willing to buy that book?"
d. Tā gānjing BU gānjing? (adjective or descriptive verb)
"Is he clean?"
e. Tā shì Rìběn rén BU shì Rìběn rén? (copular verb)
"Is he Japanese?"

In (7a'-e') below, we give the forms of (7a-e) after the verb phrase has undergone deletion. In comparing the two sets of sentences, it is important to observe that whenever deletion is possible, everything is deleted up to the left-most constituent.

7a'. Tā kàn wǒde shū BU kàn?
a". Tā kàn BU kàn wǒde shū?
c'. Tā yuànyi mǎi nèiben shū BU yuànyi?
c". Tā yuànyi BU yuànyi mǎi nèiben shū?

7e'. Tā shì Rìběn rén BU shì?
e". Tā shì BU shì Rìběn rén?

In the cases of (7b) and (7d), no deletion is possible, since the verb phrase contains only one constituent, which is of course also the left-most constituent. This observation continues to hold true with A-not-A questions derived from other sentence types. We give some examples of these below. A rough translation is given beneath each sentence.

8a. Shū nǐ xǐhuān mǎi BU xǐhuān mǎi? (transposed)
"Do you like to buy books?"
b. Nǐ yǒu tā gāo BU yǒu tā gāo? (comparative)
"Are you as tall as he is?"
c. Nǐ bǎ tā dài lai BU bǎ tā dài lai? (BA-sentence)
"Are you bringing him?"
d. Nǐ bèi tā pīping BU bèi tā pīping? (BEI-sentence)
"Have you been criticized by him?"
e. Nǐ mǎi de qǐ mǎi BU qǐ? (resultative verb)
"Can you afford to buy it?"

In (8a), the object has been shifted to the beginning of the sentence as a means of emphasis. (8b) is a comparative construction. In (8c), the object has been moved to precede the verb by the insertion of the particle ba. (8d) corresponds somewhat to the passive construction in English, where the object is shifted to the beginning of the sentence, and the particle bei is inserted before the subject. In (8e) we have a two-part verb form, i.e. the so-called resultative verb. The transformation rules which are needed to derive these sentence types from the declarative sentence type have been presented in an earlier paper.[10] The corresponding forms where the verb phrase has undergone deletion are listed below.[11] It will be noted that in the special cases of (8c-e), the deletion is restricted to the affirmative predicate. Interestingly enough, this restriction becomes partly eliminated when the aspect markers are present.

8a'. Shū nǐ xǐhuān mǎi BU xǐhuān?
a". Shū nǐ xǐhuān BU xǐhuān mǎi?
b'. Nǐ yǒu tā gāo BU yǒu?
b". Nǐ yǒu BU yǒu tā gāo?
c'. *Nǐ bǎ tā dài lai BU bǎ?
c". Nǐ bǎ BU bǎ tā dài lai?
d'. *Nǐ bèi tā pīping BU bèi?
d". Nǐ bèi BU bèi tā pīping?
e'. *Nǐ mǎi de qǐ BU mǎi?
e". Nǐ mǎi BU mǎi de qǐ?

When the aspect markers are present, however, the situation becomes somewhat more complex. Let us consider the A-not-A question below, where (9b-c) are the elliptical forms to (9a) in exactly the same sense as (4b-c) to (4a), (7a'-a") to (7a), (7c'-c") to (7c), and so on.

9a. Tā mǎile shū méiyǒu mǎi shū?
b. Tā mǎile shū méiyǒu?
c. Tā yǒu méiyǒu mǎi shū?

According to the traditional statement mentioned earlier, several difficulties arise. It is possible to derive (9a), though the parallelism becomes obscured between plain sentences (e.g. 1a-b), and sentences which contain aspect markers (e.g. 4a-b). The regularity noted in plain A-not-A questions of deleting up to the left-most member in the verb phrase is broken, since in (9b), where méiyǒu is identified with BU, the entire verb phrase mǎi shū has been deleted. Deleting the entire verb phrase is not permissible in plain A-not-A questions in spoken Mandarin, e.g.

10. *Tā mǎi shū BU?

Furthermore, since méi is considered to be an alternant of méiyǒu, one would expect (11) to be an alternant of (9b). In fact, (11) is ungrammatical in the same way as (10).

11. *Tā mǎile shū méi?

The greatest difficulty lies in the presence of the -yǒu in (9c), which, according to the traditional analysis, never existed in the left verb phrase. [12]

It is in this example that our solution becomes most convincing. Pursuing the solution exemplified in (4), we see that the underlying forms for (9) actually come from (12), which is formed in exactly the same way as plain A-not-A questions.

12a. Tā yǒu mǎi shū BU yǒu mǎi shū?
b. Tā yǒu mǎi shū BU yǒu?
c. Tā yǒu BU yǒu mǎi shū?

All of the irregularities mentioned above now disappear. On the basis of the plain questions, we can predict both (9b) and (9c), since the aspect marker -yǒu is now the left-most member of the verb phrase. Similarly, (10) and (11) can be seen to be ungrammatical because the left-most member has been deleted. The forms in (12) can be transformed into the corresponding sentences in (9) by the same set of rules presented informally in the discussion of (4). Hence, in this analysis, the formation of negative and A-not-A sentences from simple declarative sentences can be seen to be regular for both the plain sentences and those containing the two aspect markers.

Let us go back to examine the various sentence types exemplified in (7) and (8), with respect to the problem of aspect markers. We note that (7c-e), (8a-b) and (8e) cannot take aspect markers, because of the nature of the verb phrases they contain. The remaining sentences, however, all take aspect markers and form A-not-A questions in a regular way. These are now given below.

7'a'. Tā kànle wǒde shū méiyǒu?
a". Tā yǒu méiyǒu kàn wǒde shū?
b'. Tā láile méiyǒu?
b". Tā yǒu méiyǒu lái?
c. *Tā yuànyile mǎi nèiběn shū.
d. *Tā gānjing guo.
e. *Tā shìle Rìběn rén.

8'a. *Nǐ xǐhuānle mǎi shū.
b. *Nǐ yǒuguo tā gāo.
c'. Nǐ bǎ tā dàilaile méiyǒu?
c". Nǐ yǒu méiyǒu bǎ tā dàilai?
d'. Nǐ bèi tā pīpingle méiyǒu?
d". Nǐ yǒu méiyǒu bèi tā pīping?
e. *Nǐ mǎi de qǐ guo.

Section II

The rules below are the minimum necessary to demonstrate the solution presented in this study. Although they are adequate for the present purpose, it should be emphasized that the formulation must be considered highly tentative. The formal analysis of Mandarin is a mammoth undertaking that has barely begun. The general background, terminology, and implications of such rules have been discussed fully in the references cited in footnotes 1 and 2. Here we will only explain special notations and provide readings for the symbols which label the less familiar constituents.

The application of these rules is illustrated in the P-markers in Section III. The rules are ordered in their application. The CS rules, or constituent structure rules, precede the T rules, or transformation rules. All rules are obligatory, though there may be alternatives within individual rules. In the CS rules, these alternatives are enclosed by braces. In the T rules, the alternatives are enumerated under the Change portion of each rule.

CS-1: S ⟶ Nom Pred

CS-2: Pred ⟶ Pred^f

Comment: The notation X ⟶ Y^f indicates that the constituent Y may be repeated an arbitrary, but finite, number of times, each one of which is directly dominated by X.

CS-3: Pred ⟶ (BU) VP

CS-4: $\text{VP} \longrightarrow \left\{ \begin{array}{l} (\text{ASP}) \\ ((\text{EMP})\ \text{AUX}) \\ (\text{COMP}) \end{array} \right\}\ \text{VB}$

Comment: EMP is emphatic marker; AUX is auxiliary verb; ASP is aspect marker; COMP is complement.

CS-5: VB ⟶ Verb Nom

T-1: (COMP shift)

Condition: $\frac{\text{COMP}}{1}$ $\frac{\text{Verb}}{2}$

Change: 2 1

T-2: (A-not-A deletion)

Condition: $\frac{\text{Nom}}{1}$ $\frac{*\text{VP}}{2}$ $\frac{\text{X}}{3}$ $\frac{\text{BU}}{4}$ $\frac{*\text{VP}}{5}$ $\frac{\text{X}}{6}$

and: (i) $2 + 3 = 5 + 6$

(ii) $2 \neq \text{EMP}$

(iii) If 2 = BA or BEI, or 3 contains COMP, then only (B) of Change is possible.

Change: (A) 1 2 3 4 5

(B) 1 3 4 5 6

Comment: The symbol *A denotes the left-most constituent dominated by A. Referring to rule CS-4, it can be seen that *VP can be any of the following constituents: ASP, EMP, AUX, COMP, or Verb. This notation was introduced by Fillmore in WORD, Vol. 19, p. 226 (Aug., 1963).

T-3: (BU shift)

Condition: $\frac{\text{BU}}{1}$ $\frac{\text{Verb}}{2}$ $\frac{\text{de}}{3}$

Change: 2 1

T-4: (-guo shift)

Condition: $\frac{\text{-guo}}{1}$ $\frac{\text{X}}{2}$ $\frac{\text{Verb}}{3}$

and: (i) X does not contain Verb

Change: 2 3 1

T-5: (mei change)

Condition: $\frac{\text{BU}}{1}$ $\frac{\text{(-)yǒu}}{2}$ $\frac{\text{X}}{3}$

and: (i) If 3 = # (i.e. sentence boundary), then only (A) of Change is possible.

Change: (A) méi 2 3

(B) méi 3

T-6:
(-yǒu shift)

Condition: $\frac{X}{1}$ $\frac{\text{-yǒu}}{2}$ $\frac{Y}{3}$ $\frac{\text{Verb}}{4}$ $\frac{Z}{5}$

and: (i) 1 ≠ BU and 3 ≠ BU

(ii) 3 does not contain Verb

(iii) If 5 = -guo or -le, then (A); otherwise (B).

Change: (A) 1 3 4 5

(B) 1 3 4 -le 5

Section III

Several P-markers are presented below to illustrate the formation of negative and A-not-A sentences. The P-markers are at a stage of derivation preceding T-2 and the later transformations. The fragments from the various P-markers which are deletable by T-2 are represented by dotted lines. It will be seen that when some part B of the surface string is deleted, everything up to and including the formative which exactly dominates B is also deleted.

The P-markers underlie the following sentences. The parenthesized numbers after each sentence refer to the rules which are necessary, but not sufficient, to convert the corresponding surface string into a sentence.

15a. Tā mǎi shū.

b. Tā bù mǎi shū.

c. Tā mǎi shū bù mǎi shū?

Tā mǎi shū bù mǎi? (T-2)

Tā mǎi bù mǎi shū? (T-2)

d. Tā méiyǒu mǎi shū. (T-5)

Tā méi mǎi shū. (T-5)

e. Tā mǎile shū méi mǎi shū? (T-5, T-6)

Tā mǎile shū méiyǒu? (T-2, T-5, T-6)

Tā yǒu méiyǒu mǎi shū? (T-2, T-5)

f. Tā xǐhuān mǎi shū bù xǐhuān mǎi shū?

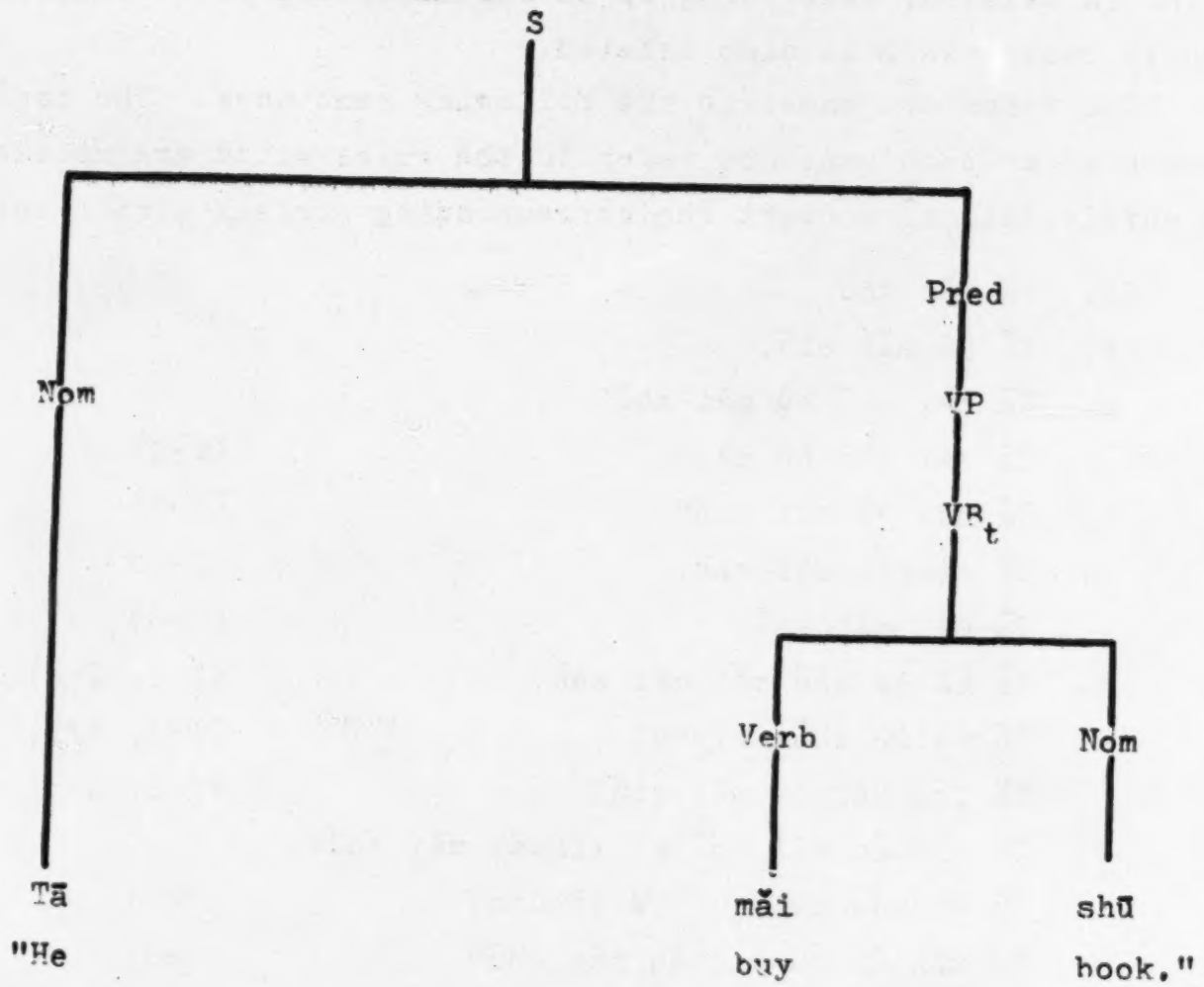
Tā xǐhuān mǎi shū bù xǐhuān? (T-2)

Tā xǐhuān bù xǐhuān mǎi shū? (T-2)

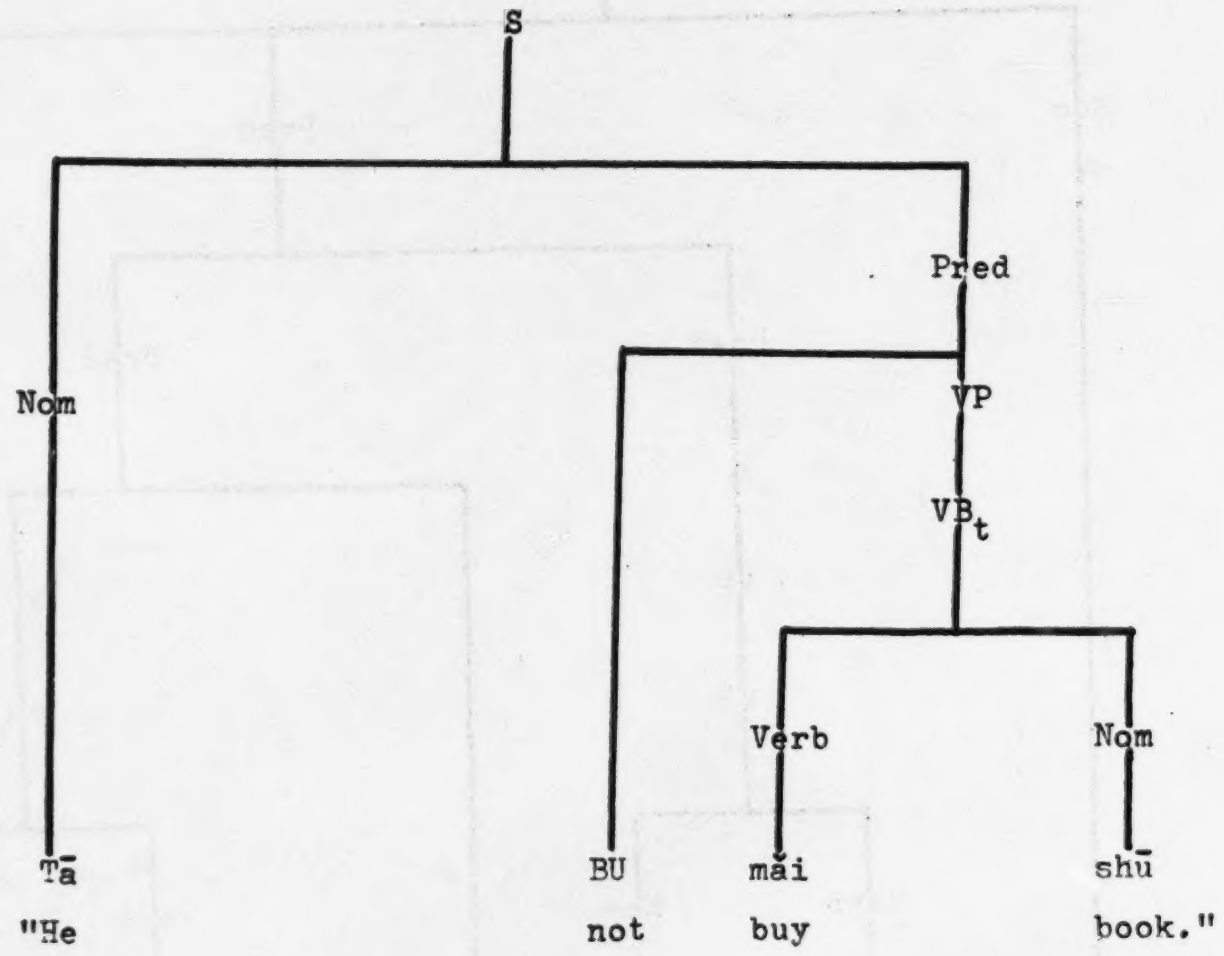
g. Tā mǎi de qǐ shū mǎi bù qǐ shū? (T-3)

Tā mǎi bù mǎi de qǐ snū? (T-2)

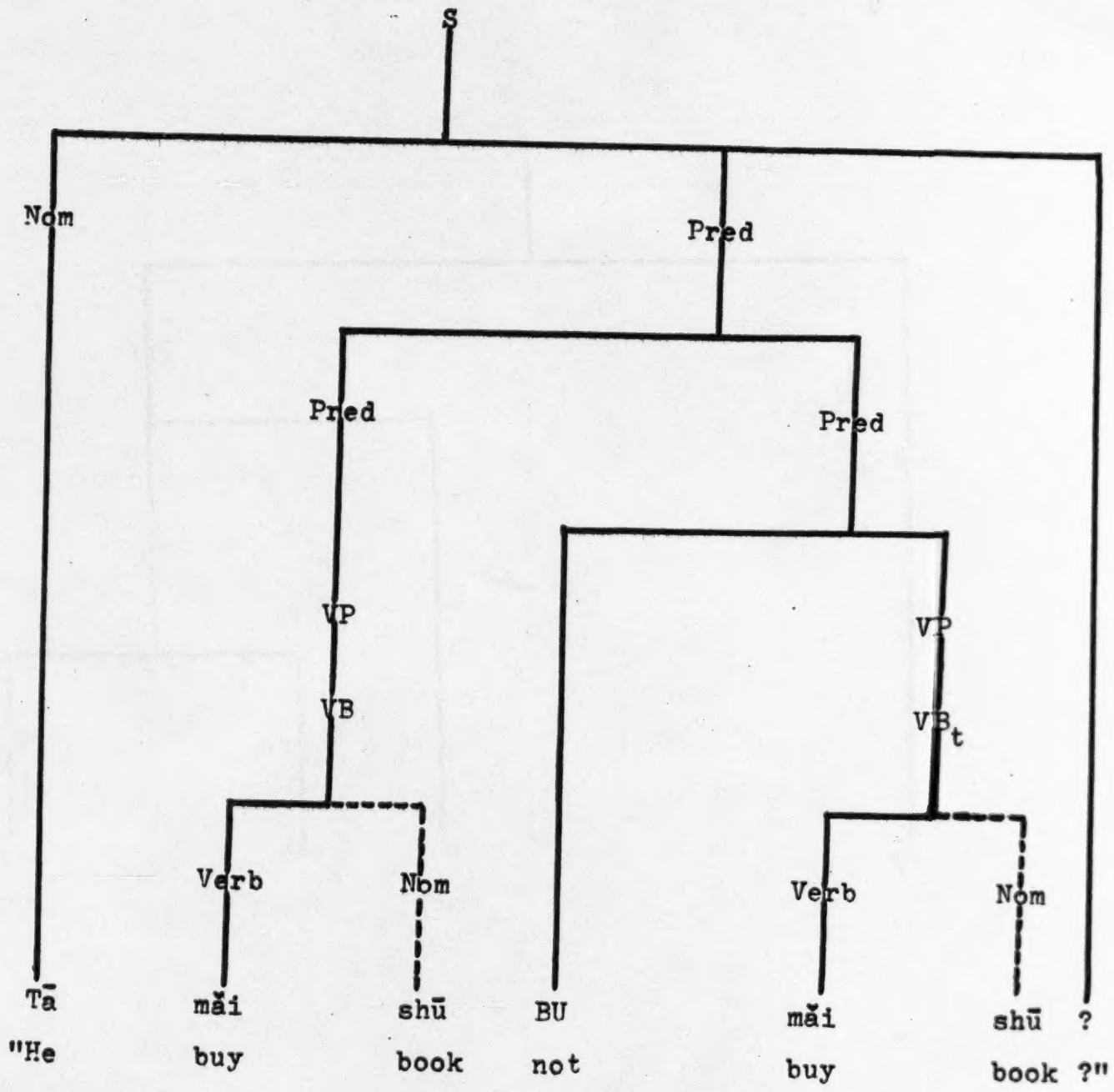
13a.



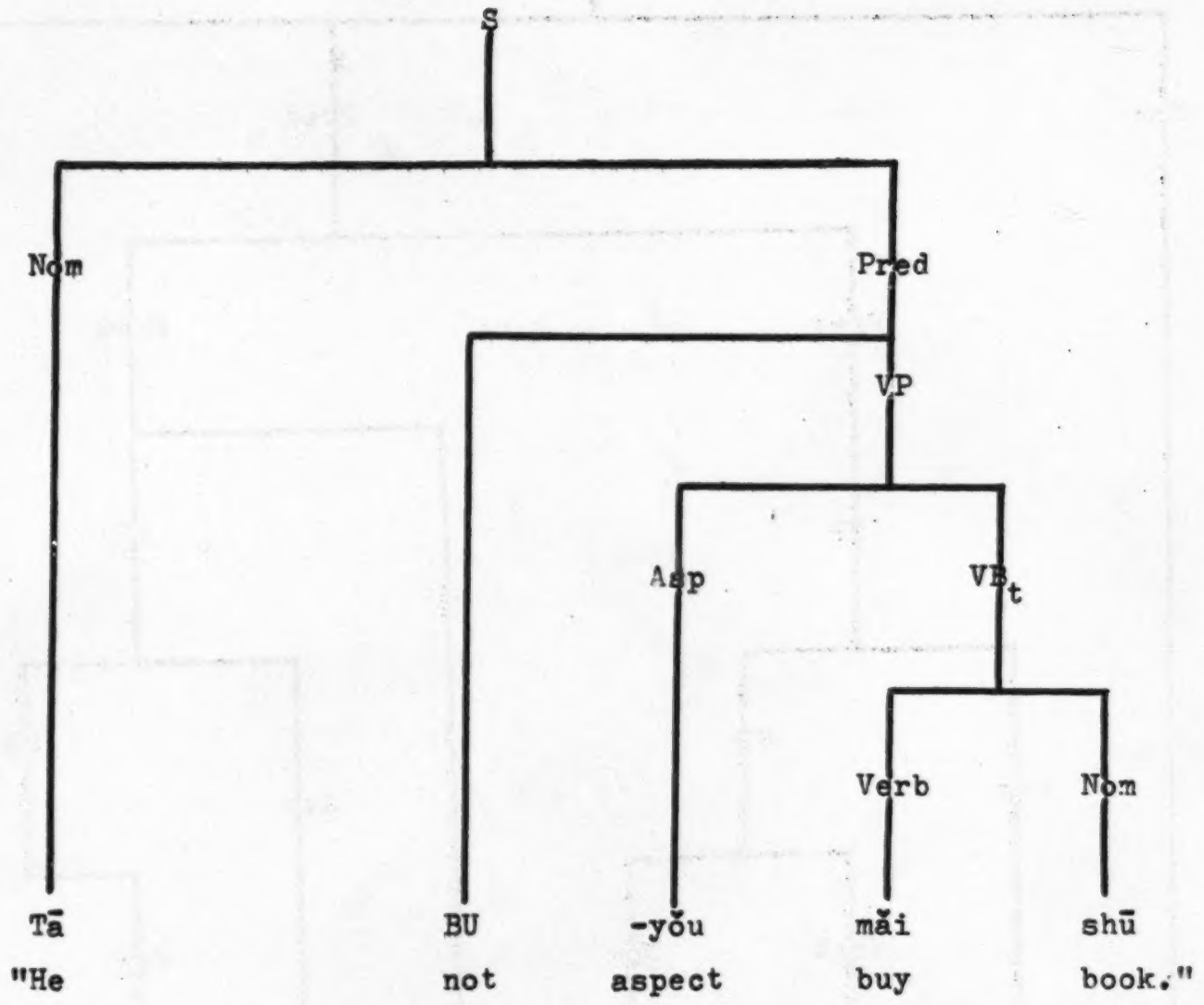
13b.



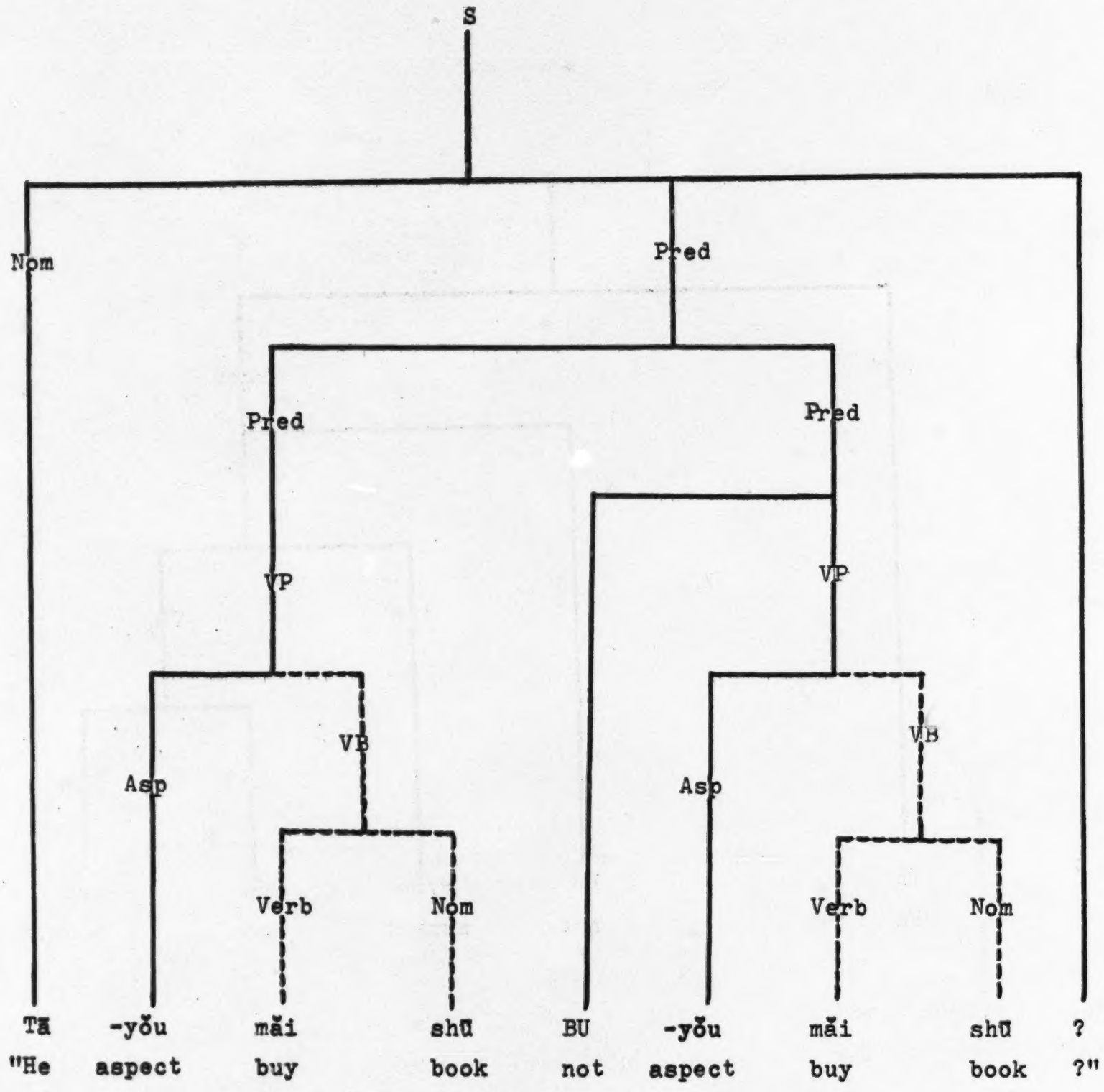
13c.


S
Nom
Pred
Pred
Pred
VP
VB
Verb
Nom
Tā
"He
mǎi
buy
shū
book
BU
not
VP
VBt
Verb
Nom
mǎi
buy
shū
book
?
?"

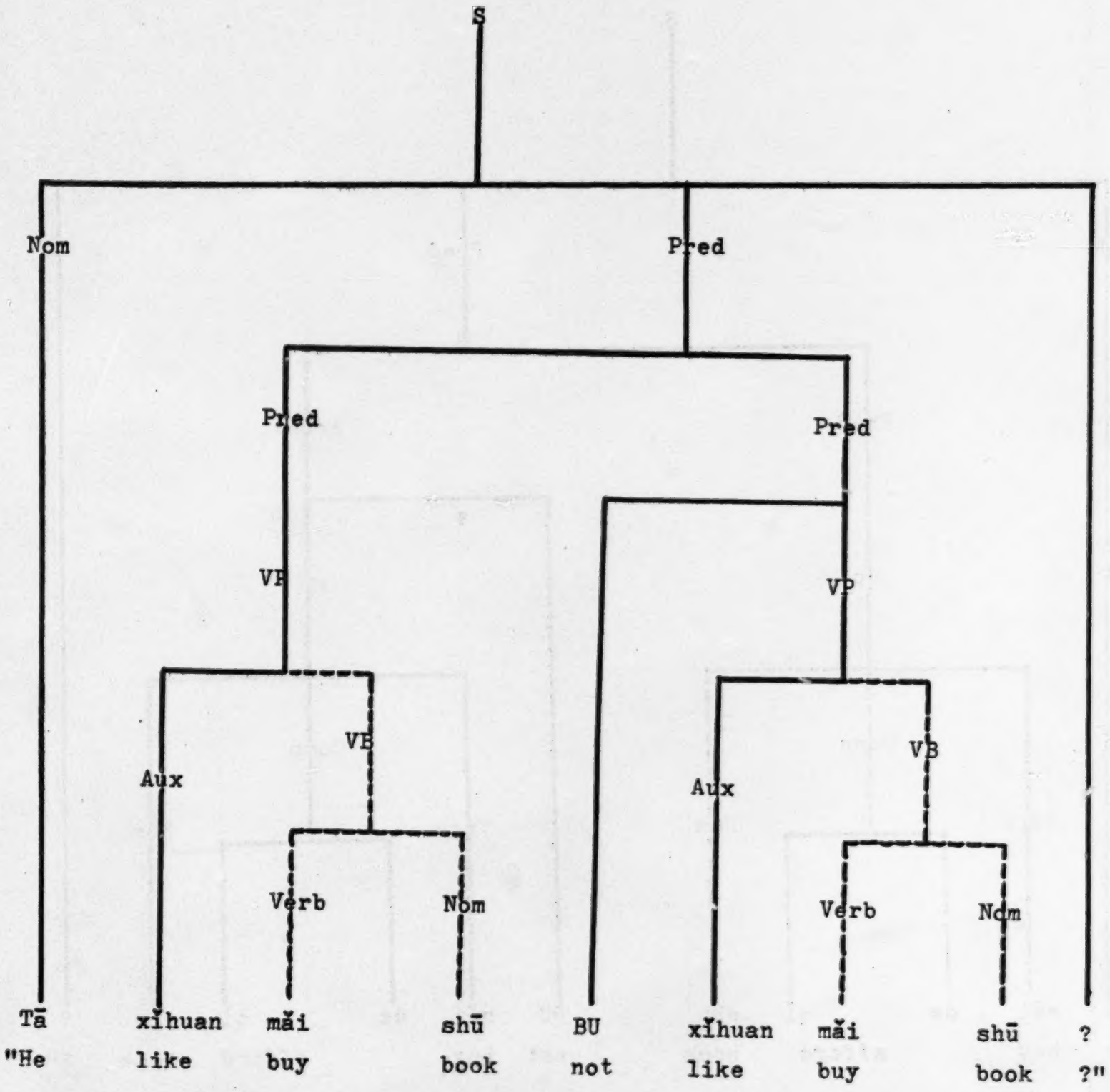
13d.


S
Nom
Pred
VP
Asp
VBt
Verb
Nom
Tā
"He
BU
not
-yǒu
aspect
mǎi
buy
shū
book."

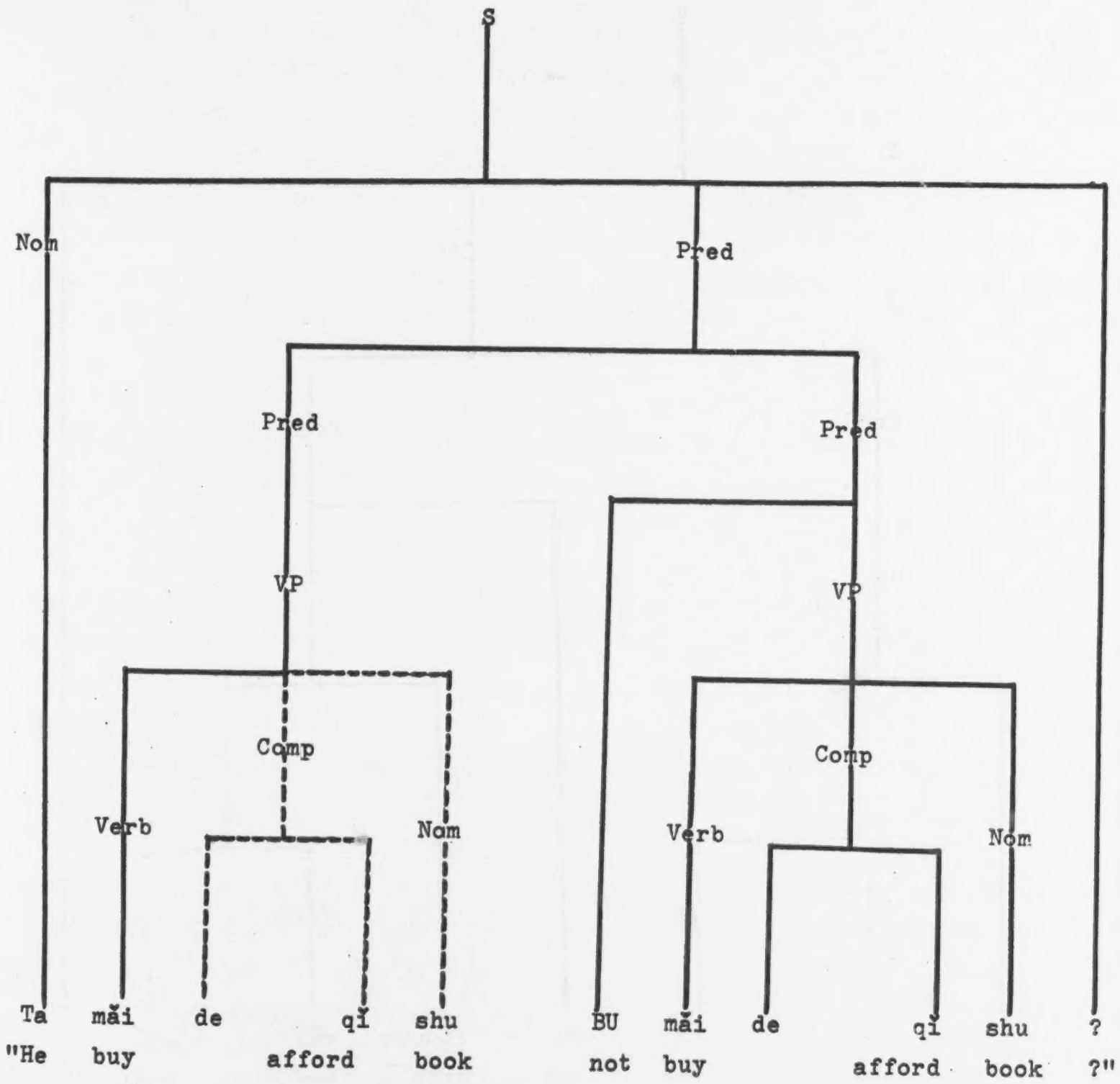
13e.


S
Nom
Pred
Pred
Pred
VP
VP
Asp
VB
Asp
VB
Verb
Nom
Verb
Nom
Tā
-yǒu
mǎi
shū
BU
-yǒu
mǎi
shū
?
"He
aspect
buy
book
not
aspect
buy
book
?"

13f.


S
Nom
Pred
Pred
Pred
VP
VP
Aux
VB
Aux
VB
Verb
Nom
Verb
Nom
Tā
xǐhuan
mǎi
shū
BU
xǐhuan
mǎi
shū
?
"He
like
buy
book
not
like
buy
book
?"

13g.


S
Nom
Pred
Pred
Pred
VP
VP
Comp
Comp
Verb
Nom
Verb
Nom
Ta
mǎi
de
qǐ
shu
BU
mǎi
de
qǐ
shu
?
"He
buy
afford
book
not
buy
afford
book
?"

Footnotes

1. This research was conducted as part of the Project on Linguistic Analysis sponsored by the National Science Foundation. It is a continuation of work first reported in my "Some Syntactic Rules in Mandarin," Proceedings of the IX International Congress of Linguists, to appear. Other works dealing with problems of Mandarin grammar may be found listed in my "Bibliography of Chinese Linguistics," to appear in volume 2 of Current Trends in Linguistics. I am indebted to members of the Project, especially Charles J. Fillmore and Anne Yue Hashimoto, for several constructive discussions.

2. A recent summary of transformational analysis is available in A.N. Chomsky's "The Logical Basis of Linguistic Theory," Proceedings of the IX International Congress of Linguists, to appear.

3. There are of course many other methods of diagramming the grammatical information contained in a P-marker, which are equivalent to the tree graph. For a survey of these methods as well as a formal discussion of the tree graph, see pp. 56-63 and pp. 71-79 respectively of Meyers and Wang, "Tree Representations in Linguistics," Project on Linguistic Analysis (POLA) Report No. 3r, The Ohio State University Research Foundation, 1963.

4. The small case spellings of Chinese expressions in this paper are in the official Pinyin notation. Expressions spelled in capital letters refer to classes of morphemes or classes of phonetic shapes. Thus, BU may be actualized as bú, bù, b-, etc., depending on the phonological rules which will eventually operate upon it.

5. For example, see p. 58 of Y.R. Chao's Mandarin Primer, Harvard University Press, 1948.

6. Positing the aspect markers before the verb can be easily justified. One obvious reason is their interaction with BU regardless of intervening structures, as was illustrated in example (3e). Another is that they are mutually exclusive with emphatic markers, and certain auxiliary verbs and verbal complements. These conditions of mutual exclusion can be most economically stated as selectional choices before the verb. Of no less importance is the consideration that many syntactic rules would need to refer to the verb and its following object; all these rules can be simplified if aspect markers do not intrude in between.

7. For Cantonese, this information was provided by Anne Yue Hashimoto. Although the situation has not been examined in detail as yet, she believes that a solution similar to the one proposed here would be useful in Cantonese also. For the Min dialect, see p. 283 and p. 312 of Yuán, Jiā-hua et al., Hànyǔ Fāngyán Gàiyào, Peking, 1960.

It is well known that in many Germanic and Romance languages there is an aspect marker that is homophonous with the verb "have" (possess), such as in English. According to the present analysis, it is interesting to note that Mandarin also has this feature, i.e. yǒu (aspect) is homophonous with the verb yǒu (possess).

BU changes to méi before -yǒu (aspect), yǒu (possess), yǒu (exist), the determiner yǒu, and the comparative yǒu (as in 8b). Although these five morphemes are all written with the same logograph, they have very different grammatical properties. We distinguish the first of these by a pre-posed hyphen.

8. Some general features of disjunctive questions are discussed in the Mandarin Primer, pp. 58 ff. We follow Chao in the use of the term "A-not-A question."

9. For example, see Dǐng, Shēng-shu et al., Xiàndài Hànyǔ Yǔfǎ Jiǎnghùa, Peking, 1961, p. 205, where it is observed that whereas sentences like (6a) are "relatively rare," sentences like (6b-c) are "commonly seen."

10. See "Some Syntactic Rules in Mandarin," op. cit. fn. 1.

11. Certain predicates can follow diverse and complicated subjects and function in the capacity of "tag questions," in the manner of the French "n'est-ce pas?" These include shì-BU-shì "yes-not-yes," xíng-BU-xíng "feasible-not-feasible," dùi-BU-dùi "correct-not-correct," and hǎo-BU-hǎo "good-not-good." The grammatical mechanism for deriving these constructions is essentially the same as for the other A-not-A questions. Among these constructions, shì-BU-shì has to be derived more indirectly than the others, because it is a transitive verb, i.e. through deleting the object or shifting it to precede the verb.

12. It should be noted that while forms like (9c) have long been common in Southern Mandarin, their usage in Northern Mandarin began only recently. For example, see Xiàndài Hànyǔ Yǔfǎ Jiǎnghùa, loc. cit., p. 206, where the examples given include "Tiān yǒu méiyǒu liàng?" ("Has it become down?") and "Tā yǒu méiyǒu qǐlai?" ("Has he gotten up?").

It is generally thought that this usage is borrowed into Northern Mandarin as a "southernism." However, it is just as convincing to me to explain this syntactic change on the basis of a process of regularization. Formerly, in Northern Mandarin, deletion could take place from either the affirmative or the negative predicate in the plain A-not-A question; but if the A-not-A question contained aspect markers, the deletion had to be restricted to only the negative predicate. In the current dialect, there is no longer this restriction. Had this restriction persisted, we would need to add another condition to the transformation T-2 in Section II, namely, condition (iv): If 2 = ASP, then only (A) of Change is possible.

Hence, this change brings about a greater parallelism between the plain and non-plain A-not-A questions, and consequently a simplification in the underlying grammar. Here, then, we have a form of syntactic "regularizing" at work which is revealed clearly by formal analysis.